

What Is Claimed Is:

1 1. An assembly of heating furnace and semiconductor
2 wafer-holding jig, comprising:

3 a furnace body made of refractory or heat insulting
4 material having at least one flat surface;

5 a heater disposed around the inner side surface of said
6 furnace body;

7 a reaction chamber which forms a uniform heating zone; and

8 , a wafer-holding jig capable of holding a semiconductor
9 wafer and advancing and retracting the semiconductor wafer in
10 the uniform heating zone along the longitudinal axes of the
11 furnace body, the wafer-holding jig arranged such that the
12 front surface of the semiconductor wafer is substantially in
13 parallel with said flat surface of said heater.

1 2. The assembly as claimed in claim 1, wherein said heating
2 furnace is a vertical heating furnace.

1 3. The assembly as claimed in claim 1, wherein said heating
2 furnace is a horizontal heating furnace.

1 4. The assembly as claimed in claim 1, further comprising
2 a plurality of thermal storage plates disposed in the uniform
3 heating zone, wherein the thermal storage plates are of the
4 same size, or are smaller than the semiconductor wafers, and
5 are disposed substantially in parallel with the semiconductor
6 wafer or between two semiconductor wafers.

1 5. A method of manufacturing a semiconductor device,
2 comprising heat-treating a semiconductor wafer by rapid
3 thermal processing using the assembly as claimed in claim 1.

1 6. A method of manufacturing a semiconductor device,
2 comprising heat-treating a semiconductor wafer by rapid
3 thermal processing using the assembly as claimed in claim 4.

1 7. A semiconductor wafer-holding jig used in a heating
2 furnace, comprising:

3 a gas introduction hollow conduit disposed along the
4 longitudinal direction of the heating furnace; and

5 a wafer-holding jig disposed on the front end of said gas
6 introduction hollow conduit, comprising a wafer-holding
7 portion which includes an ejection hole for ejecting a gas to
8 the semiconductor wafer from said gas introduction hollow
9 conduit.

1 8. The semiconductor wafer-holding jig as claimed in claim
2 7, which is used in a vertical heating furnace.

1 9. The semiconductor wafer-holding jig as claimed in claim
2 7, which is used in a horizontal heating furnace.
3